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IS 6893-1 (1988): Proforma for purchase specification for machine tools, Part 1: General purpose parallel lathes and precision lathes [PGD 3: Machine Tools]

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Bhartṛhari—Nītiśatakam

“Knowledge is such a treasure which cannot be stolen”



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Indian Standard

PROFORMA FOR PURCHASE SPECIFICATION FOR MACHINE TOOLS

PART 1 GENERAL PURPOSE PARALLEL LATHES AND PRECISION LATHES

(First Revision)

1. Scope — Recommends the proforma for preparation of purchase specification for general purpose parallel lathes and precision lathes. It also gives essential information about these lathes at their accessories which will enable the user to assess the usefulness and suitability for requirements.

2. Proforma

Specification	Reference to Indian Standard	Unit	Actual Value
(1)	(2)	(3)	(4)
2.1 Capacity			
2.1.1 Maximum swing:			
a) Over bed		mm	
b) In gap		mm	
c) Over cross-slide		mm	
2.1.2 Distance between centres		mm	
2.1.3 Bed width		mm	
2.1.4 Width of gap in front of face plate		mm	
2.1.5 Maximum facing diameter		mm	
2.1.6 Maximum weight of work piece that can be held in between chuck and supported by centre in tail stock:		kg	
a) Dead centre			
b) Live centre			
2.1.7 Maximum torque on spindle		Nm	

(Continued)

Specification (1)	Reference to Indian Standard (2)	Unit (3)	Actual Value (4)
2.2 Main Spindle			
2.2.1 Type and size of:			
a) Spindle nose	IS : 2582-1972		
b) Taper bore in	IS : 1715-1986		
i) Spindle			
ii) Spindle sleeve			
c) Bore in spindle		mm	
2.3 Tailstock			
2.3.1 Type and size of internal taper in tailstock sleeve	IS : 1715-1986		
2.3.2 Sleeve travel: Manual/power operated (whichever applicable)		mm	
2.3.3 Sleeve diameter		mm	
2.3.4 Maximum offset of tailstock on either side of centre line		mm	
2.4 Tool or Top Slide			
2.4.1 Type of tool holder			
2.4.2 Tool or top slide travel		mm	
2.4.3 Maximum shank section of tool	IS : 1983-1958	mm × mm	
2.5 Main Spindle Speeds			
2.5.1 No. of speeds and range forward direction		rev/min	
2.5.2 No. of speeds and range reverse direction		rev/min	
2.6 Saddle Feeds			
2.6.1 No. of feeds and feed range:			
a) Longitudinal		mm/min	
b) Transverse		mm/min	

(*Continued*)

Specification (1)	Reference to Indian Standard (2)	Unit (3)	Actual Value (4)
2.6.2 Rapid transverse of (wherever applicable): a) Saddle b) Cross-slide		mm/min mm/min	
2.6.3 Maximum feed force		N	
2.7 Lubrication			
2.7.1 Type of lubrication (Details to be specified)			
2.8 Threads			
2.8.1 No. and pitch range: a) Metric b) Module c) Any other thread	IS : 4218 (Parts 1 to 6)	No./Range No./Range	
2.9 Electricals			
2.9.1 Total power		kW	
2.9.2 Power supply		V, ph, Hz	
2.9.3 Motors			
2.9.3.1 Main: a) Type b) Frame size and mounting c) Output(s) d) Speeds e) No. of phases f) Power factor g) Efficiency h) Rated voltage j) Frequency k) Type of duty m) Class of insulation n) Ambient temperature p) Type of protection	IS : 1231-1974 IS : 4691-1985	kW rev/min % V Hz °C	

(Continued)

Specification (1)	Reference to Indian Standard (2)	Unit (3)	Actual Value (4)
q) Type of cooling r) Vibration limits s) Any other features	IS : 6362-1971 IS : 4729-1968		
2.9.3.2 Other motor(s): a) Type b) Frame size and mounting c) Output(s) d) Speed(s) e) No. of phases f) Power factor g) Efficiency h) Rated voltage j) Frequency k) Type of duty m) Class of insulation n) Ambient temperature p) Type of protection q) Type of cooling r) Vibration limits s) Any other features	IS : 1231-1974 IS : 4691-1985 IS : 6362-1971 IS : 4729-1968	kW rev/min % V Hz °C	
2.10 Coolant pump a) Output(s) of motor b) Speed(s) of motor c) Discharge of pump at maximum working height (see dimension H_1 in Fig. in Appendix A)	IS : 2161-1962	kW rev/min l/min	
2.11 Noise Emitted by Machine	IS : 10988-1984	dB(A)	
2.12 Mechanical Guarding	IS : 9474-1980		
2.13 Geometrical and Practical Tests			
2.13.1 General purpose parallel lathes	IS : 1878 (Part 1 and Part 2)-1971		
2.13.2 Precision lathes	IS : 6040-1972		

(Continued)

Specification (1)	Reference to Indian Standard (2)	Unit (3)	Actual Value (4)
2.14 Colour(s)	IS : 5-1978		
2.15 Weight of Machine with Electricals and Standard Accessories		kg	
2.16 Floor Space Required (length × width)		mm × mm	
2.17 Standard Accessories (Details of accessories — IS No. to be specified wherever applicable like centre, spanners, etc)			
2.18 Special Accessories (Details of accessories — IS No. to be specified wherever applicable like chuck, live centre, coolant pump, etc)			

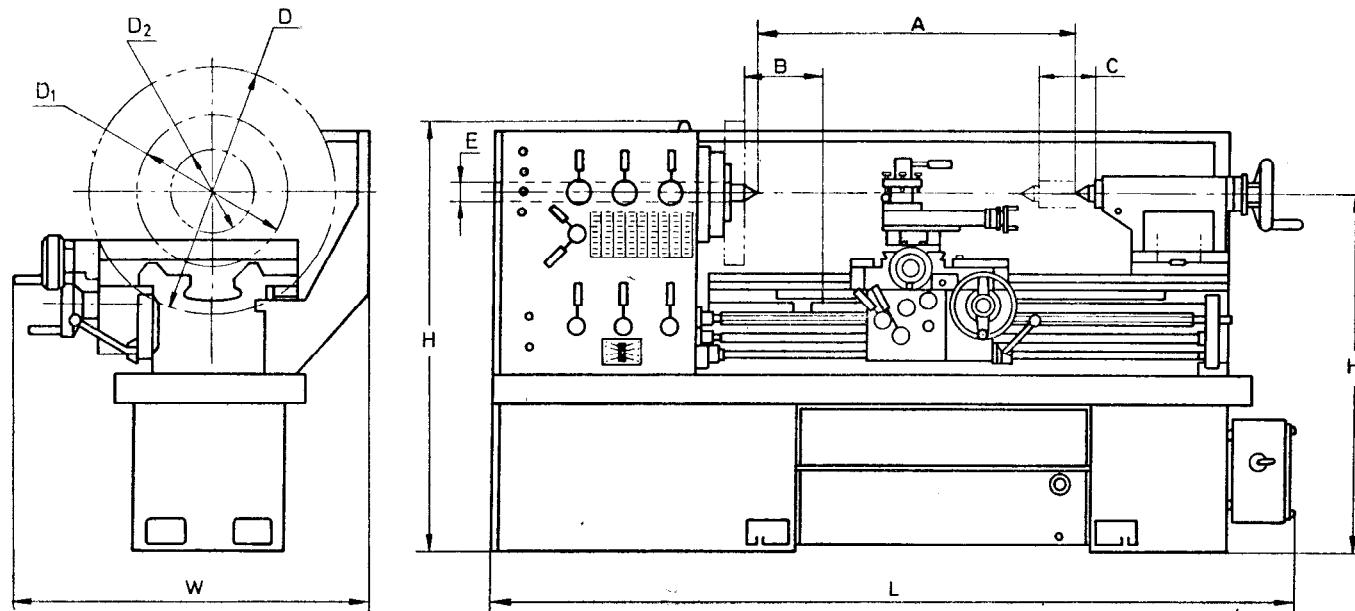
Note — While submitting quotations, the following information shall be furnished by the manufacturers/suppliers, together with technical literature and capacity chart of the machine (see Appendix A for representative capacity chart for lathes):

- a) Hardness of guideways, and
- b) Any other special features.

APPENDIX A

REPRESENTATIVE CAPACITY CHART FOR GENERAL PURPOSE PARALLEL LATHES AND PRECISION LATHES

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- A** = Admit between centres
- B** = Length of gap in front of face plate
- C** = Tail stock sieve travel
- D** = Maximum swing in gap
- D₁** = Maximum swing over bed
- D₂** = Maximum swing over cross-slide
- E** = Diameter of hole through spindle
- L** = Overall length of machine
- W** = Overall width of machine
- H** = Overall height of machine
- H₁** = Maximum working height

EXPLANATORY NOTE

The proforma for preparation of purchase specification for machine tools has been prepared to enable a respective buyer to collect data from various manufacturers/suppliers for purposes of comparison. This is meant to be sent out with an enquiry by the purchaser so that the manufacturers/suppliers can fill in the data and send it back to the purchaser to make the comparison easier for the purchaser.

Reference is made to the following Indian Standards in this standard:

IS : 5-1978	Colours for ready mixed paints and enamels (<i>third revision</i>)
IS : 1231-1974	Dimensions of three phase foot mounted induction motors (<i>third revision</i>)
IS : 1715-1986	Dimensions for self holding tapers (<i>second revision</i>)
IS : 1878 (Part 1)- 1971	Test chart for general purpose parallel lathes: Part 1 Lathes with swing over bed up to 800 mm (<i>first revision</i>)
IS : 1878 (Part 2)- 1971	Test chart for general purpose parallel lathes: Part 2 Lathes with swing over bed over 800 mm and up to 1 600 mm (<i>first revision</i>)
IS : 1983-1985	Shank sections for single point turning and planing tools (<i>first revision</i>)
IS : 2582 (Part 1)- 1972	Spindle noses — type 'A' (<i>first revision</i>)
IS : 2582 (Part 2)- 1972	Spindle noses — camlock type (<i>first revision</i>)
IS : 2582 (Part 3)- 1972	Spindle noses bayonet type (<i>first revision</i>)
IS : 4218 (Parts 1 to 6)	ISO metric screw threads
IS : 4691-1985	Degrees of protection provided by enclosures for rotating electrical machinery (<i>first revision</i>)
IS : 4729-1968	Measurement and evaluation of vibration of rotating electrical machines
IS : 6040-1971	Test chart for precision lathes — Lathes with swing over bed up to 500 mm and distance between centre up to 1 500 mm
IS : 9474-1980	Principle of mechanical guarding of machinery
IS : 10988-1984	Method of measuring noise from machine tools (excluding testing in anechoic chambers)

In the present revision, detailed requirements of motors and coolant pumps and requirements for environmental and safety aspects have also been included in the proforma.